Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) Method for measuring the binding of analyte molecules to probe molecules, the method comprising the following steps:

(a) providing a circuit surface ~~with~~ having electronic circuits, a contact spot and a metal counterelectrode thereon,

(b) ~~providing areas with covalently bound~~ immobilizing probe molecules, ~~located~~ in spatial proximity to the electronic circuits,

(c) binding to the analyte molecules nanoparticles, each nanoparticle having a metal surface,

(~~c~~d) ~~binding~~ placing the analyte molecules ~~to~~ in the vicinity of the probe molecules in order to facilitate binding of the analyte molecules to the probe molecules, ~~and, together with the analyte molecules, electrically conductive nanoparticles, and~~

(~~d~~) ~~making the circuits of the circuit surface electrically reading the presence of the nanoparticles and thereby detecting the binding of the analyte molecules~~

(e) introducing an electrolyte adjacent the circuit surface and establishing an electrical contact between the metal surfaces on the nanoparticles and the contact spot to create a galvanic element including the contact spot and the counterelectrode, and

(f) measuring an electrical property generated by the galvanic element in the electronic circuits of the circuit surface, thereby enabling the binding of the analyte molecules to the probe molecules to be measured.

2.-3. (Canceled).

4. (Currently Amended) Method according to Claim 1, wherein the probe molecules are ~~bound to areas of~~ immobilized on the circuit surface in spatial proximity to the electronic circuits.

5. (Currently Amended) Method according to Claim 1, wherein the probe molecules are ~~bound to areas~~ immobilized in spatial proximity to the electronic circuits~~, the areas located on the surface of~~ on a countersurface, positioned opposite the circuit surface.

6. (Currently Amended) Method according to Claim 1, wherein the probe molecules are ~~covalently bound to the surface~~ immobilized by covalent binding and, in step (~~c~~d), the analyte molecules ~~are~~ bind by affinity ~~bound~~ to the probe molecules.

7. (Currently Amended) Method according to Claim 1, wherein the nanoparticles are ~~already~~ bound to the analyte molecules before step (d).

8. (Currently Amended) Method according to Claim 1, wherein ~~in a first part of step (c), analyte molecules are bound to surface-bound probe molecules and in a second part of step (c),~~ the nanoparticles ~~with adhesion molecules fixed to them~~ are ~~attached~~ bound to the ~~bound~~ analyte molecules after step (d).

9.-10. (Canceled).

11. (Currently Amended) Method according to Claim ~~10~~ 1, wherein the electrical contact between the nanoparticles and the contact spot is ~~made~~ established by electrically conductive molecules.

12. (Original) Method according to Claim 11, wherein the electrically conductive molecules are compounds of the polyene class.

13. (Currently Amended) Method according to Claim ~~9~~ 1, wherein the contact between the nanoparticles and the contact spot is ~~made~~ established by the nanoparticles touching the contact spot.

14. (Currently Amended) Method according to Claim 13, wherein analyte molecules ~~and~~ with nanoparticles bound thereto are bound to probe molecules ~~located~~ immobilized on an insulating surface opposite the circuit surface, and the contact of the nanoparticles with the contact ~~spots~~ spot is ~~made~~ established by ~~pressing~~ moving the insulating surface ~~with~~ and the bound nanoparticles ~~onto the contact spots of~~ towards the circuit surface so that the nanoparticles touch the contact spot.

15. (Currently Amended) Method according to Claim 13, wherein analyte molecules ~~and~~ having magnetizable nanoparticles bound thereto are bound to probe molecules ~~located~~ immobilized on a surface opposite the circuit surface; the linkages between nanoparticles and analyte molecules or the linkages between the analyte molecules and the probe molecules are broken; and the contact of the now no longer immobilized nanoparticles with the contact ~~spots~~ spot of the circuit surface is made by an external magnetic field acting on the nanoparticles.

16. (Currently Amended) Method according to Claim 13, wherein analyte molecules ~~and~~ having magnetizable nanoparticles bound thereto are bound to probe molecules ~~located~~ immobilized on the contact ~~spots~~ spot of the circuit surface, and ~~the~~ electrical contact of the nanoparticles with the contact ~~spots~~ spot is ~~made~~ established by the effect of an external magnetic field or by mechanical pressure of a countersurface on the nanoparticles.

17. (Original) Method according to Claim 13, wherein the circuit surface or the surface of the nanoparticles is loaded with electrically conductive protrusions.

18. (Currently Amended) Method according to Claim 1, wherein DNA oligomers are used as probe molecules, the analyte molecules are amplified ~~in a previous~~ prior to step (d) by polymerase chain reactions (PCR) using a biotinylated primer, and the nanoparticles are ~~bound~~ coated with streptavidin, enabling binding of the nanoparticles to ~~the~~ biotin groups of the analyte molecules by ~~being coated with~~ a biotin-streptavidin binding pair.

19. (Currently Amended) Method according to Claim 18, wherein the analyte molecules are amplified prior to step (d) by polymerase chain reactions (PCR) using a primer, and the nanoparticles are coated with a substance that binds to molecules in the primer, enabling binding of the nanoparticles to the analyte molecules so that instead of the biotin-streptavidin binding pair another binding pair is used.